

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 63-077050

(43)Date of publication of application : 07.04.1988

(51)Int.Cl.

G03C 1/00

G03F 7/00

H01L 21/30

(21)Application number : 61-222718

(71)Applicant : NIPPON TELEGR & TELEPH
CORP <NTT>

(22)Date of filing : 20.09.1986

(72)Inventor : IKITSU HIDEO

(54) INTERLAYER MATERIAL FOR THREE-LAYER RESIST AND PATTERN FORMING METHOD

(57)Abstract:

PURPOSE: To form an upper layer resist film uniform in film thickness by forming an interlayer composed essentially of specified organopolysiloxane and incorporating an organic peroxide as a cross-linking agent to form a 3-layer resist.

CONSTITUTION: The interlayer of the 3-layer resist is composed essentially of organopolysiloxane represented by the formula shown on the right in which each of R is optionally same or different, and each is H, OH, alkoxy, or a hydrocarbon group; $m+n+p+q=1$, $m>0$, $n, p, q\geq 0$, $m/q\leq 1$ ($q>0$), $m/p\leq 0.3$ ($p>0$), and p and q are simultaneously not 0. Further, the cross-linking agent containing the organic peroxide is incorporated in the interlayer. A substrate pattern is formed by using the 3-layer resist as follows: Spin coating the semiconductor substrate 1 with a lower layer resist 2 made of an organic polymer, then heat treating it, spin coating the lower layer 2 with the interlayer material 3 composed of the organopolysiloxane containing a prescribed amount of organic peroxide, heat treating it, spin coating the interlayer 3 with an upper layer resist 4 made of a polymer to be cross-linked or decomposed by radiation, and finally heat treating it, thus permitting the good upper layer resist 4 uniform in thickness to be formed by using this interlayer.



(式中、Rは、同一もしくは異なっていてもよく、炭化水素基、水基、水酸基、アルコキシ基からなる群から選ばれる一価であり、 $m+n+p+q=1$ 、 $m>0$ 、 $n, p, q\geq 0$ よりである)

